NESTAR SYSTEMS INCORPORATED

CLUSTER/ONE MODEL A™ VERSION 1.1 USER'S REFERENCE CARD

CONTENTS

GETTING STARTED

1. Turn on power at left rear of your Apple user-station.
2. System will display:

NESTAR

CLUSTER/ONE MODEL A NETWORK BOOT 1.1

STATION	ADDRESS $nn
SLOT 6	SERVER $FE

VOLUME TO BOOT: /MAIN/

(If your Apple has no autostart ROM, enter C600G <return> to get above display.)

3. Ask your system manager for the name of a DOS or Pascal type virtual diskette you can boot. Type its full name, using left arrow if necessary to erase the displayed prefix and any typing errors. Press <return>.
4. See section on DOS or Pascal, as appropriate, to CREATE and MOUNT your own virtual diskettes. Then proceed as with a stand-alone Apple.

COMMAND SYNTAX

```
<0-n blanks> <command word>
[<1-n blanks><subcommand word or pathname>]
[<,other fields>]
```

1. A comma must delimit pathname from other fields.
2. No blanks may be imbedded in:
   - a command word
   - a subcommand word
   - other fields
3. A field may have one of three forms:
   - \<keyword\> (e.g. REPLACE or ALL)
   - \<keyword\> = \<value\> (e.g. T = D)
   - \<letter\>\<value\> (e.g. D9 for drive 9)
4. Optional parameters are indicated by square brackets: e.g. [usage]. The system assigns default values, where meaningful, when optional parameters are not specified.
5. NFS commands must sometimes be preceded by a special character, depending upon the language environment:

@	BASIC command level
\<return\> CTRL-N	Integer BASIC program level
\<return\> CTRL-N or \<return\> CHR$(14)	Applesoft BASIC program level
no prefix	Pascal CMD program
no prefix	Pascal NFSCMD function

NFS COMMANDS AND PARAMETERS

access rights

set of letters from RWECD (read, write, erase, create, and delete). May be null.

address

number representing memory address in user station Apple. Decimal numbers between 0 and 32767 refer to addresses between 0 and 32767. Decimal numbers between -32768 and -1 refer to addresses between 32768 and 65535. May also be in hexadecimal preceded by $ [$FFFF].

BLOAD pathname [,LOAD = address]

- loads binary NFS file previously saved with BSAVE.
- loads the program or data into your Apple at the LOAD address in BLOAD Command, if present; if not present loads at LOAD address in corresponding BSAVE, if present; otherwise, loads at FROM address in BSAVE.
- e.g. BLOAD   /MAIN/PAGE 2, LOAD = 16384

BRUN pathname [,LOAD = address]

- BLOADS a binary NFS file, then executes it starting at the first address loaded.
- e.g. BRUN   /MAIN/STARTPROG

BSAVE pathname,FROM =address,size [,LOAD = address] [,REPLACE]

- saves on an existing binary NFS file the contents of the user-station Apple memory, starting at the FROM address, for the length specified by the size parameter.
- e.g. BSAVE   /MAIN/READDATA,FROM = $800,SIZE = 4096.C

CREATE pathname,type [,size] [,sectors] [,protection] [,usage] [,drive]

- creates and optionally mounts a new NFS file.
- creates intermediate directories using default protection and size.
- e.g. CREATE   /1/SIMPLE,T = P
  - CREATE   /MAIN/USERS/NSS/1,T = D,SECTORS = 13, PRVPW = JILL,PRVACC = RWE, GRPPW = DAVID,GRPACC = R, PUBACC = ,D9,RW,UPD

DELETE pathname

- deletes an NFS file
- e.g. DELETE   /MAIN/USERS/NSS/1:JILL

drive

Dd, where d = number
(1-255 for DOS; 3-12 for Pascal; drives 3,6-8 may be set virtual for Pascal)
- e.g. D9

HELP [subject]   or   ? [subject]

- displays list of commands or syntax of specified command or format of specified parameter.
- e.g. HELP   or   HELP MOUNT

LIST [pathname] [,VERBOSE] [,NESTED]

- lists entries in default or specified directory.
- VERBOSE gives size of each NFS file.
- NESTED lists entire hierarchy of directories.
- e.g. LIST   /MAIN/USERS/NSS,VERBOSE,NESTED

LOCK lockname [,SHR] [,EXC]

- locks "lockname" for exclusive (EXC) or shared (SHR) use.
- default is EXC.
- e.g. LOCK   PETER,SHR

lockname

name of lock (same restrictions as name)

MOUNT pathname, drive [,usage]

- establishes correspondence between a virtual diskette and drive number.
- default usage is RO,SHR.
- e.g. MOUNT   /MAIN/USERS/NSS/1,D2,RW,EXC

name

name of disk unit or NFS file. 1-15 characters; leading and trailing blanks removed; embedded blanks ok. Allowed characters: A-Z 0-9 * ! " # $ % & '() = ? > < [] { } ↑ ~ @ _ |

number

- if decimal: between -32768 and 32767, inclusive.
- if hex: between $0 and $FFFF, inclusive.

OFF

- initializes user station and issues BRUN   /MAIN/BOOT command.

password

a secret word used to gain access to protected NFS files. Same restrictions as name. May be null.

pathname

pathname:	/unitname/filepath
or	filepath
filepath:	name [:password] [/filepath]
unitname:	1, 2, 5, or 6 [:password]
or	name [:password]

- identifies an NFS file
- unit 1: left floppy disk unit
- unit 2: right floppy disk unit
- units 5 & 6: hard disks
- 1-80 characters. An initial slash indicates first field is a unit name; no initial slash indicates current default directory is to be prefixed to pathname (see SET DIR).
- /unitname refers to the name of the root directory mounted on any NFS disk unit.
- in PROTECT, SHOW PROTECT, and LIST commands, a null pathname refers to the current default directory.
- in SET DIR, a null pathname resets the current default directory to null.

PROTECT pathname [,protection]

- modifies passwords or access rights for an NFS file.
- does not affect passwords or access rights not specified.
- e.g. PROTECT   /MAIN/USERS/NSS,PRVPW = JOHN, PRVACC = CDRWE,GRPACC = ,PUBACC =

protection: protect item [,protection]

protect item: GRPPW = password
                   PRVPW = password
                   PUBACC = access rights
                   GRPACC = access rights
                   PRVACC = access rights

RENAME old pathname, new name

- renames specified NFS file. The last name in pathname is renamed to new name. May be used to rename directories.
- oldname: current pathname
- newname: last name in new pathname
- e.g. RENAME   /MAIN/FRED/TEMP,PERM

sectors

- specifies number of sectors per track for DOS virtual diskettes.
- use SECTORS = 13 for DOS 3.2.1
      SECTORS = 16 for DOS 3.3 using CREATE command
      SECTORS = 4 to 32 for DOS 3.3 using VDOS
               CREATE utility.
- required when creating DOS (T = D) virtual diskettes.
- not allowed for Pascal, binary and directory type NFS files.

SET DIR [pathname]

- sets default directory to specified pathname or to null if no pathname given.
- e.g. SET DIR   /MAIN/USERS/NSS:JOHN

SET [GRPPW = password]
[PRVPW = password]

- sets default group or private password.
- e.g. SET GRPPW = JILL,PRVPW = DAVID

SHOW DATE

- displays current date as MM/DD/YY.

SHOW DIR

- displays name of current default directory.

SHOW LOCK lockname

- lists all stations holding specified lockname.
- e.g. SHOW LOCK PETER

SHOW [ALL] LOCKS

- displays locks held by this station or all locks currently held in file server.

SHOW [ALL] MOUNTS [pathname]

- gives information on all virtual diskettes mounted on the file server.

SHOW PROTECTION [pathname]

- displays group, private and public access rights for the NFS file addressed by pathname or for default directory if no pathname specified.

SHOW STATION

- displays user's own station number.

SHOW TYPE drive

- displays type of virtual diskette mounted on specified drive.
- e.g. SHOW TYPE D2

SHOW TYPES

- displays types of virtual diskettes mounted on drives 1-16.

SHOW VOLS

- displays name and number of system disk units currently operational.

size

SIZE = number [.size-unit]
(number must be positive)

size-unit: C: character (1 byte)
            S: sector (256 bytes)
            B: block (512 bytes)
   blank: block (512 bytes)
            K: 1024 bytes

TIMESTAMP

- returns encoded form of current date and time as 70,yymmddhhmmssw, where w is day-of-week (Sunday is day 1).

type

T = B   (binary)
T = D   (DOS)
T = P   (Pascal)
T = Y   (directory)
T = S   (system file)

UNLOCK lockname or UNLOCK ALL

- releases named lock or all locks held by this station.
- e.g. UNLOCK PETER

UNMOUNT drive or UNMOUNT ALL

- cancels previous mount(s).
- e.g. UNMOUNT D9

usage

one of: EXC (exclusive), SHR (shared), UPD (update)
one of: RO (read only), RW (read/write)
- UPD allows one user RW access, others RO,SHR.

ERROR AND INFORMATION MESSAGES

General Syntax

0,OK
1,ILLEGAL COMMAND
2,NAME PARAMETER REQUIRED
3,UNRECOGNIZED PARAMETER
4,ILLEGAL DRIVE NUMBER
5,ILLEGAL STATION NUMBER
7,PARAMETER APPEARS TWICE
8,ILLEGAL TYPE PARAMETER
9,COMMAND TOO LONG
10,PARAMETER TOO LONG
11,ILLEGAL PROTECTION PARAMETER
12,NO STATION CMD; USE $nn PREFIX
13,ILLEGAL NUMBER (NEGATIVE OR TOO BIG)
19,HELP FILE NOT FOUND

Create

20,TYPE PARAMETER REQUIRED (T =)
21,SIZE OUT OF RANGE (<1C OR > 48K)
23,SIZE PARAMETER REQUIRED WITH T = B
24,SIZE OUT OF RANGE (<1C OR > 48K)
25,SECTORS PARAMETER REQUIRED WITH T = D

Delete

29,CURRENTLY MOUNTED OR DEFAULT DIR

Mount

30,DRIVE REQUIRED
31,IN USE
32,IN EXC USE
34,RW NOT ALLOWED ON DIRECTORIES

Unmount

35,DRIVE OR "ALL" REQUIRED
36,NOT CURRENTLY MOUNTED

Lock

40,ILLEGAL LOCK NAME
41,IN USE
42,IN EXC USE

Unlock

45,NOT HELD

Bsave/Bload/Brun

51,NOT BINARY
52,NOT PREVIOUSLY SAVED
53,FROM PARAMETER REQUIRED
54,SIZE PARAMETER REQUIRED
55,FILE WAS THERE, REP NOT SPECIFIED

Set/List

57,FILE IS NOT A DIRECTORY
58,DATE MAINTAINED AUTOMATICALLY

Show

59,TYPE = SYSTEM
60,SHOW OPTION NOT RECOGNIZED
61,DRIVE REQUIRED

ERROR AND INFORMATION MESSAGES (continued)

SHOW
62, NOT CURRENTLY MOUNTED
64, NO DEFAULT DIRECTORY SET
65, TYPE = PASCAL
66, TYPE = DOS
67, TYPE = BINARY
68, TYPE = DIRECTORY
69, UNKNOWN TYPE
70, timestamp
71, types

Local Commands
90, DRIVE NUMBERS(S) REQUIRED
91, DRIVE NUMBER CAN NOT BE USED
92, NO MORE CHANNEL SPACE (MAX = 3)

System Errors
94, NOT CONNECTED
95, UNRECOGNIZABLE NETWORK RESPONSE
96, NO NETWORK CARD IN SLOT
97, MEMORY FULL
98, NETWORK ERROR
99, USER ABORT

NFS File Errors
101, END OF FILE OR RECORD OUT OF RANGE
102, FILE NOT FOUND
103, BAD DELIMITER IN PATHNAME
104, FILE NAME OR PASSWORD TOO BIG
105, NO ACCESS FOR READ TO DIRECTORY
106, NON DIRECTORY FOUND IN PATHNAME
107, END OF PATHNAME IS A DIRECTORY
109, ROOT DIR NOT SPECIFIED, NO DEFAULT
110, NO ACCESS FOR READ
111, NO ACCESS FOR WRITE
113, NO ACCESS FOR ERASE
114, NO ACCESS FOR CREATE
115, NO ACCESS FOR DELETE
116, CANT DELETE NON-EMPTY DIRECTORY
117, NFS MEMORY FULL
118, DISK FULL
119, DIRECTORY FULL
120, INTERNAL ERROR
121, UNINITIALIZED DISK
122, WRONG SOFTWARE VERSION
123, FILE ALREADY EXISTS
124, DISK I/O ERROR, SUBCODES x,y
125, VERIFY FAILED (BAD MEMORY)
126, DISKETTE WAS CHANGED
127, BAD DISKETTE FORMAT
128, BAD UNIT NUMBER IN PATHNAME
129, DISKETTE WRITE PROTECTED
130, NEED PRIVATE PASSWORD FOR PROTECT
131, UNIT NAME NOT FOUND
133, DISK NOT READY
134, DISK CONTROLLER NOT PRESENT

FILE SERVER NOT OPERATING

If the file server is not operational, giving an NFS command will cause the user station Apple to wait until it becomes available. To resume local operation, press CTRL-SHIFT-N. If the file server is rebooted, it may be necessary to remount any user station virtual diskettes and set locks again when it resumes operation.

MULTIPLE FILE SERVERS

Pascal environment only: use CMD online utility to identify file servers by number of slot containing interface card and station number of file server. Use SET NFS and SET DRIVES to mount virtual diskettes from disk units of different file servers.

DOS—IMMEDIATE EXECUTION OF NFS COMMANDS

System Displays	User Enters
1.] or >	PR#n (n is slot with network interface card, usually 6)
2.] or >	@ command <return> e.g. @LIST<return>
3. Return code and message e.g. 0,OK 1,ILLEGAL COMMAND	(Steps 2 and 3 may be repeated indefinitely.)

DOS—DYNAMIC EXECUTION OF NFS COMMANDS UNDER PROGRAM CONTROL

Applesoft BASIC	INTEGER BASIC
PRINT CHR$(4);"PR#6"	PRINT"<ctrl-d>PR#6"
PRINT CHR$(14);"MOUNT..."	PRINT"<ctrl-n>MOUNT..."
PRINT CHR$(4);"IN#6"	PRINT"<ctrl-d> IN#6"
INPUT NN,NN$	INPUT NN$

Pascal—CMD Program

1. At Pascal Command level X(ecute PASCAL:CMD.
2. Enter NFS command or local CMD command followed by <return> (Do NOT precede with an @ sign as in DOS immediate execution).
3. CMD will display return message (but not return code).
4. To exit, press <esc> <return> or <Q> <return>.

Pascal—Local CMD Commands

SET NFS [SLOT n] [STN $nn]
• sets default "virtual channels" for NFS commands. Initial default NFS channel is slot booted from, station $FE.

SET DRIVE[S] n[,n,...] REAL or VIRTUAL [SLOT n] [STN $nn]
• sets the drive(s) specified to REAL, or to VIRTUAL through default station, or slot n, file server $nn.
• specified slots must contain NFS cards
• e.g. SET DRIVES 3,6,8 VIRTUAL makes drives 3,6,8 virtual through default channel (slot 6, station $FE).

SHOW NFS
• displays default "virtual channel" (network card slot number and file server station number) to which file server commands are currently being sent.

SHOW DRIVES [NOCHECK]
• displays the status of all Pascal units (1-12): unit number, real or virtual, type, number of blocks on disks.

SHOW SLOTS
• displays Pascal units connected to the network card(s) in each slot, plus network card station numbers

PASCAL UTILITIES

SETPROFILE

- used by System Manager to create a file of autoboot defaults for the individual user station.
- defaults allowed: volume to be booted, automatic boot, Pascal and DOS access rights to booted volume, default library volume for Pascal and BASIC ROM load.
- to use, execute PASCAL:SETPROFILE

STARTCMD (textfile)

- text file of commands on user's boot volume. These commands are executed by NESTAR.START at Pascal initialization time.
- to use as a startup program, edit a file named startcmd.text on your boot disk. Enter into the file the desired startup commands (allowed commands are listed in the User Manual).

FILEINFO

- displays internal information about NFS files.
- to use, execute PASCAL:FILEINFO.

TDELETE

- allows the user to delete entire directory hierarchies of NFS files.
- to use, execute PASCAL:TDELETE.

NETLINK

- allows the user to access the Cluster/One network when Pascal was booted from standard floppy disks.
- to use, see User's Manual, Section 8.2.5

DIRLIST

- writes a network directory hierarchy to a Pascal file or to the console.
- to use, execute PASCAL:DIRLIST.

DOS UTILITIES

DOS utilities are on /MAIN/DOS/3.2.1 and /MAIN/DOS/3.3.

SETPROFILE

- used by System Manager to create a file of autoboot defaults for the individual user station.
- defaults allowed: volume to be booted, automatic boot, Pascal and DOS access rights to booted volume, default library volume for Pascal and BASIC ROM load.
- to use, RUN SETPROFILE.

NESTAR DISK COPY

- allows the user to copy the contents of an entire real or virtual diskette (13 or 16 sectors), to another real or virtual diskette.
- to use, BRUN NESTAR DISK COPY.

FILEINFO

- displays information about NFS files.
- to use, RUN FILEINFO.

FIDMORE

- allows a user to load and modify a copy of Apple DOS 3.3 FID to accept drive numbers from 1 to 9 instead of just 1 to 2.
- to use, RUN FIDMORE from a disk that contains it. FID is not supplied by NESTAR.

BOOT PROGRAM

The NFS command BRUN /MAIN/BOOT is executed whenever:

1. The NFS command OFF is issued at a user station.
2. H is typed at the Pascal command level at a user station.
3. Power is turned on at an Apple user station with an autostart ROM and a network interface card. If there is no autostart ROM, type Cn00G to the Apple II Monitor prompt, *, where n is the slot containing the network interface card.

The BOOT program displays the Nestar logo, station number in hex, default virtual slot, file server station number, and prompts: VOLUME TO BOOT: /MAIN/. Enter the desired pathname. (See GETTING STARTED on page 1 of this card).

The BOOT program acts differently when booting DOS and Pascal volumes.

DOS:

- mounts the requested volume on drive 1, with usage as specified by the station profile (/MAIN/SYSTEM/ PROFILE/$nn) or default profile (/MAIN/SYSTEM/ PROFILE/$00).
- if there is a language card, loads it with either Integer or Applesoft BASIC (whichever is not present in ROM) from Pascal volume specified as library volume in profile.
- gives control to DOS, which runs HELLO program, if any, on booted volume.

Pascal:

- mounts the requested volume on drive 4, with usage as specified by the station profile (/MAIN/SYSTEM/ PROFILE/$nn) or default profile (/MAIN/SYSTEM/ PROFILE/$00).
- mounts the Pascal library volume specified by profile on drive 5, RO, SHR, if possible.
- Pascal then executes either SYSTEM.STARTUP on the boot volume or NESTAR.START on the library volume. NESTAR.START reads commands from the STARTCMD text file on the boot volume.
- SYSTEM.APPLE and SYSTEM.PASCAL must be found on either the booted volume or the library volume (see System Manager's Manual for details.)